

## **ABSTRACT**

**Aim:** The objective of our study was to evaluate the effect of miniscrew implant assisted micro-osteoperforation on root resorption histologically .

**Material and Methods:** 20 Patients in whom therapeutic extraction of maxillary first bicuspid were selected. The experimental site was the mesial proximal surface of the maxillary first bicuspid, while the distal proximal surface acted as control of the same bicuspid . Three micro-osteoperforation was performed in the inter dental bone between the maxillary canine and maxillary first premolar region with an miniscrew implant of diameter 1.5mm and length 8mm. After a period of 28 days the maxillary first premolar were extracted. The extracted teeth were then cut with metal bur to obtain the root portion of the maxillary first premolar, which was subsequently decalcified and sectioned mesio-distally. The sectioned specimens were then stained with hematoxylin and eosin. These sections were viewed under light microscope, to qualitatively and quantitatively assess the resorption pattern in implant assisted micro-osteoperforation .

**Results:** The histologic sections revealed localized spot root resorption craters of varying degree, pertaining to either cervical, middle or cervical third of the root. Cervical root resorption craters accounted for most root resorption crater in all

specimens with mean percentage of resorption of  $24.11 \pm 2.92\%$ , which was statistically significant. We also found evidence of cemental repair in the root resorption craters with was significantly more in the cervical craters. There was acute pulp reaction in response to cervical root resorption craters.

**Conclusions:** Considering the minimal degree of resorption in the root resorption craters, the localized root resorption crater reported in our study can be accounted due to the compressive stress created by miniscrew implant on the periodontal ligament rather than the RAP following micro-osteoperforation.